

Creating a 21st Century Policy Framework for Teacher Compensation in Iowa

This document was prepared exclusively for the Institute for Tomorrow's Workforce (ITW) and the Pay-for-Performance Commission and was discussed by the Commission on December 18, 2006. The ITW Board of Directors used the information contained in this report to develop its final set of recommendations to be submitted to the Iowa Legislature in January 2007. Moreover, the Pay-for-Performance Commission will use the information contained in this report to craft its report to the Iowa Legislature in January 2007.

The document fulfills one of the deliverables contractually guaranteed by Learning Point Associates to the Institute for Tomorrow's Workforce.

December 2006

James W. Guthrie, Ph.D.
Vanderbilt University

Cortney Rowland and Susan K. Sexton
Learning Point Associates



1120 East Diehl Road, Suite 200
Naperville, IL 60563-1486
800-356-2735 • 630-649-6500
www.learningpt.org

Copyright © 2006 Learning Point Associates. All rights reserved.

Learning Point Associates is a trademark of Learning Point Associates.

1867_12/06

Contents

	Page
Introduction.....	1
Overview of Teacher Pay-for-Performance for the Nation and Iowa.....	3
Nation.....	3
Iowa.....	3
Public Input.....	4
1987: Educational Excellence Program.....	4
2001: Student Achievement and Teacher Quality Program.....	5
Recommendation.....	9
Recommendation: Implement a career ladder to provide teachers with compensation for career advancement.....	9
Implementation Guidelines.....	13
Immediate Next Steps.....	13
Estimated Costs.....	14
Evaluating the Effects of Career Ladder and Pay-for-Performance Initiatives.....	14
Conclusion.....	15
References.....	16
Appendix. Is Iowa Teacher Pay Adequate?.....	18

Introduction

Teacher pay for performance is not new in the nation or in Iowa. Historically, there have been initiatives put forward by which teacher pay would be linked to measures of teacher proficiency or measures of student performance. The last major round of activity in this sphere was in the 1970s and '80s. At the time, the idea paraded under the label “merit pay.” That movement spread dramatically across the nation’s policy landscape and then rapidly faded into operational oblivion. In addition to resistance by professional educators, the movement failed because it paid little attention to matters of accurate and fair measurement of teacher performance or student achievement, was insufficiently linked to analytic efforts to appraise its strengths and weaknesses and make midcourse corrections, and offered financial incentives of a magnitude insufficient to motivate added teacher enthusiasm or performance change. Iowa began tinkering with a modern pay for performance program in 1987, and the state has not given up hope that at some point, valid and reliable measures for assessing teacher performance and linking it to student performance will be implemented across the state.

Iowa’s Teacher Pay-for-Performance (PFP) Commission was established in 2006 through House File 2792 (2006). The Commission is charged with designing and implementing a pay-for-performance program and providing a study related to teacher compensation containing a pay-for-performance component. Legislative language directed the study to measure the cost and effectiveness of a compensation system that provides financial incentives based on improved student performance (House File 2792, 2006). This work is currently being conducted by the Institute for Tomorrow’s Workforce and Learning Point Associates, which recently completed the policy study.

House File 2792 also charged the PFP Commission with initiating pilot projects to test the effectiveness of pay-for-performance programs. These pilot projects are scheduled to begin in July 2007 in 10 pilot sites with an additional 20 pilot sites to be added in July 2008. The purpose of the pilot projects is to identify the strengths and weaknesses of various pay-for-performance program designs, to evaluate their cost effectiveness, to analyze student achievement gains, and to make necessary adjustments before implementing a pay-for-performance program statewide (House File 2792, 2006).

The pilot projects provide Iowa with the opportunity to test a variety of approaches to rewarding teachers for improved student performance. To guarantee thoughtful and research-based information is presented to the PFP Commission and potentially leveraged in the design of the pilot program, Learning Point Associates developed this report by engaging a variety of sources, including the opinions and ideas of various stakeholders who must implement and bear the consequences of any proposed changes. Specifically, stakeholder input was solicited from the following:

- An Advisory Workgroup comprised of Iowa stakeholders whose individual voices represent education, business, legislative, and community constituencies across Iowa.
- Seven focus groups comprised of more than 100 individuals representing the previously mentioned constituencies and rural, suburban, and urban locales across the state.
- A telephone survey conducted with 602 randomly selected registered Iowa voters.

- An online feedback form designed to collect input from all Iowans.
- The Institute for Tomorrow’s Workforce Board of Directors and executive director through various face-to-face meetings.
- Various stakeholder groups who invited representatives from the Institute for Tomorrow’s Workforce to present information on the study at meetings.

Learning Point Associates also reviewed appropriate state legislation, consulted the existing research, and documented best practices to ensure this report is grounded in what is known, what has been tested, and what has been proven to work while at the same time pushing the boundaries of the existing approaches to create a pay-for-performance report for Iowa that contains bold and innovative recommendations.

This report provides the PFP Commission with information from the recently completed policy study about which career ladder and teacher compensation issues need to be addressed in order to move forward with implementing the pilot projects. The report includes a short overview of pay for performance for the nation and Iowa; a recommendation for a career ladder and pay-for-performance initiative; and implementation guidelines for this recommendation.

Overview of Teacher Pay-for-Performance for the Nation and Iowa

Nation

Pay for performance does not have a precise meaning in education circles. However, as a concept, it has two major facets. One is paying teachers added amounts to acquire knowledge and skills that, at least logically, have a presumed link to their ability to instruct students. The other pay-for-performance facet is linking educator remuneration more directly to the academic achievement, however measured, of the students for whom they are instructionally or administratively responsible. Fifteen states recently have adopted a form of financial compensation for added levels of student achievement or teacher proficiency. These include large states such as Texas and Florida as well as states with small student populations such as Alaska. Congress has authorized and the United States Department of Education has recently issued \$42 million in Teacher Incentive Fund grants to 16 states and local districts to implement, measure, and improve educator pay-for-performance plans. Some states rely upon competitive proposals from districts and schools and award funding based upon the merit of submitted plans. Other states have mandated a statewide approach. Even individual districts (Houston) have implemented their own plans for teachers or administrators (Austin).

According to Public Agenda's 2003 *Stand by Me* poll (Farkas, Johnson, & Duffett), when asked if districts should be able to use criteria other than putting more time in the district or going back to school for graduate work as a means of financially rewarding teachers, 41 percent of respondents stated that districts should be able to use other criteria. Interestingly, 55 percent of those respondents were new teachers and only 33 percent were veteran teachers. In *Teachers Off the Record: Findings from Recent Public Opinion Research* (2005), Learning Point Associates and The Teaching Commission report growing receptivity among teachers to pay incentives that are based on such factors as performance, location, or content-area expertise. For example, that report draws from The Teaching Commission's 2005 public opinion poll which revealed that 77 percent of teachers responded favorably to higher salaries for teachers willing to teach in hard-to-staff schools that frequently have difficulties recruiting and retaining good teachers. Furthermore, that same poll showed that a little more than half of the teacher respondents reported that they would favor a proposal that would raise salaries with increases primarily going to teachers who positively impact student achievement; raise teaching standards; and increase accountability for teachers. Again, higher percentages of new teachers rather than veteran teachers responded favorably to that notion.

Iowa

As part of its charge to review the current context in Iowa regarding teacher compensation, an external analysis of teacher salaries in Iowa compared to the region, the country, and in other professions was commissioned by Learning Point Associates. The analysis was conducted by Michael Wolkoff, an economist and national expert on teacher compensation issues at the University of Rochester. The results of this analysis were included in the deliberations with the Advisory Workgroup and the Institute for Tomorrow's Workforce Board as part of the overall review of research, data, and Iowa history that influenced the final teacher compensation recommendations with a goal of ensuring that the teaching profession remains an attractive option for people considering teaching as a career.

In 2004, the Iowa State Education Association reported that Iowa teacher salary rankings reached an all-time low at 41st in the country (Iowa State Education Association, 2004). Wolkoff (2006) looked closely at several issues around current teacher pay in Iowa. For example, he shows that although the state's average teacher pay is ranked near the bottom compared to the national average, teacher salaries in Iowa appear to be relatively competitive with other states in the region and with other comparable occupations in the state (relative to teachers in many other states). Certainly there are areas that present variation, such as rural districts whose teachers tend to receive lower salaries than their urban counterparts. Wolkoff concludes that “innovations in teacher pay flexibility and rewards would help mollify” issues with specific problem areas (p. 1). Wolkoff also highlights Iowa's pupil-teacher ratio, which is lower than both the regional average and the national average. He projects that had Iowa upheld the same pupil-teacher ratio as the national average pupil-teacher ratio, Iowa teacher pay might have been 15 percent higher. More information about Wolkoff's research on Iowa teacher pay can be found in Appendix A.

Public Input

Similar to constituencies from other states that have begun conversations around teacher pay for performance programs, Iowans expressed significant passion for this topic. Linking teacher pay to student performance remains controversial in Iowa—especially if standardized test scores are the only variable in an equation that computes teacher pay based upon student performance. While there is resounding support across the state for increasing teacher salaries, many do not support such a formulaic approach to teacher pay that fails to consider student ability factors such as learning disabilities and external student influences such as student socioeconomic status, attendance, and home life. Many would rather the state implement measures that evaluate the holistic child—including measures of curiosity, inquisitiveness, and the ability to successfully negotiate with peers.

Moreover, some Iowans suggested that if teacher pay is to be linked to performance, additional measures beyond student test scores must be considered for teachers—including peer reviews and parent and student input as well as professional development activities fulfilled to address skill gaps and enhance content expertise.

The recommendation from Learning Point Associates attempts to reflect a design that ties teacher performance in a more solid, fair way with learner performance. We also suggest a mixed-model approach so that student performance is not the exclusive indicator.

Legislative Efforts. One necessity to providing a foundation for learner performance and driving toward standards for students is to draw on teacher capital by developing and supporting a career ladder as well as enhancing motivation. To that end, Iowa has embraced two major efforts in the past to do just that—one that began in 1987 and another in 2001. Following is an overview of each effort, including the goals of the effort as well as its successes and failures.

1987: Educational Excellence Program

In 1987, the Iowa Legislature approved the Educational Excellence Program, which became effective July 1, 1987 (fiscal year [FY] 1988). The program was geared toward increasing

teacher pay in the state. The Iowa Legislative Fiscal Bureau (1997) announced, “A standing appropriation of \$92.0 million was provided to fund the program, however, actual expenditures for FY 1988 were \$86.1 million” (p. 1).

At the outset, the Educational Excellence Program consisted of three phases:

- **Phase I—Increase Minimum Teacher Salaries for Recruitment of Quality Teachers.** “Phase I was designed to bring the minimum teacher salary up to \$18,000 in order to recruit quality teachers. ... A total of \$11,125,590 was expended for Phase I in FY 1988” (Iowa Legislative Fiscal Bureau, 1997, p. 1).
- **Phase II—Supplement Teacher Salaries for Retention of Quality Teachers.** Phase II was designed to supplement the pay of teachers in school districts and area education agencies to encourage the retention of quality teachers. “A total of \$36,614,055 was expended for Phase II in FY 1988. [...] Phase II generated approximately \$1,100 per teacher on a statewide basis in FY 1988” (Iowa Legislative Fiscal Bureau, 1997, pp. 1–2).
- **Phase III—Utilization of Performance Pay to Enhance Quality and Effectiveness of Teachers.** The largest portion of funds under the initiative went to Phase III, which was designed to enhance the quality, effectiveness, and performance of Iowa’s teachers by promoting teacher excellence. These funds were to be supplemental or performance-based pay in addition to regular salary schedules for teachers that require additional instructional work assignments. To qualify, individual plans aligning with state criteria were to be submitted by a district or area education agency and approved by the Iowa Department of Education. In addition, participating teachers also had to have an individual plan that linked to the district’s plan. “In FY 1988, \$38,372,425 was expended on Phase III” (Iowa Legislative Fiscal Bureau, 1997, p. 2).

As a result of the Phase III component of the initiative, 477 Iowa school districts submitted plans for hikes in teacher pay—tapping funding for Phases I and II of the program. “To qualify for a share of the additional \$42 million [Phase III], districts had to develop plans that based the raises on performance, additional work loads, or additional academic coursework” (Flax, 1988). Most of the approved plans, which had Phase III components, called for higher pay for additional work or advanced training *only*. Phase III was discontinued during the 2003 legislative session amid decreasing funding and legislative discomfort with the direction of the program and the lack of linkage to student performance.

2001: Student Achievement and Teacher Quality Program

During the 2001 Iowa legislative session, the Student Achievement and Teacher Quality (SATQ) program was established through Senate File 476 (2001). At this point, beginning teacher salaries had risen from \$23,000 to \$24,500. SATQ created several components, including the following:

- Mentoring and induction for beginning teachers and administrators.
- Eight Iowa teaching standards and 42 criteria defining expectations for all teachers.

- The first part of a new four-level career ladder based on skills and knowledge—not experience and degrees. The four levels of the career ladder were Beginning, Career I, Career II, and Advanced.
- An increased minimum salary level for beginning and Career I teachers (participating districts were required to raise beginning teacher salary by \$1,500 per year until the district minimum teacher salary hit \$28,000).
- Team-based variable pay pilots—three different groups of pilots completed in three different years.

The career ladder and the team-based variable pay are discussed further.

Career Ladder. Districts could choose to adopt the career ladder system. Teachers were to be promoted one level at a time and remain at a given level for at least one year before being promoted to the next level. Table 1 provides an overview of the career ladder levels.

Table 1. Career Ladder Levels

Level	Description
Beginning	First two years of teaching. Must hold a provisional license, have completed a preparation program, and participate in a beginning teacher mentoring and induction program, which participating districts must offer. Must complete mentoring program and induction to move to next step.
Career	Begin work on an individual professional development plan. District must create a \$2,000 differential between the average Beginning teacher salary and the minimum Career teacher salary. Career teacher has completed induction, a comprehensive evaluation, holds a license, and demonstrates competencies of a Career teacher.
Career II (never activated)	Career II teacher may become a mentor or a supervisor of student teachers. Participating districts should establish a minimum salary for a Career II teacher that is at least \$5,000 greater than the minimum Career teacher salary. Career II teachers should complete an individual development plan and receive a comprehensive evaluation every five years. Teachers may remain at the Career II level.
Advanced (never activated)	A Career II teacher must submit a portfolio of work aligned with the Iowa teaching standards for a review panel and must demonstrate superior teaching skill to attain Advanced status. Participating districts should establish a minimum salary for an Advanced teacher that is at least \$13,500 greater than the minimum Career teacher salary.

Source: Education Commission of the States (2001)

At the point of SATQ creation, it was intended that Career II and Advanced levels were to be activated later. However, funding was never allocated to implement Career II and Advanced levels. The descriptions for Career II and Advanced level teachers were simply developed in preparation for possible funding.

Team-Based Variable Pay. One component of Senate File 476 was team-based variable pay (TBVP) (Iowa Department of Education, n.d.), which sought to create a collaborative learning environment rewarding teachers and administrators for achieving a common goal. This part of the SATQ program intended to allocate cash awards for teachers and others employed in schools

whose pupils showed improvement on assessments. A pilot program was established to give Iowa school districts with one or more participating attendance centers the opportunity to explore and demonstrate successful methods to implement TBVP. Pilots were to be contained within a year and could be made up of a school building or even a grade level, although most participants were at the school building level. The Iowa Department of Education released a request for proposals that explained the criteria for involvement and how to apply. Required minimum criteria included the following:

- **Assessment System.** At least one valid and reliable standardized assessment measure for at least reading and mathematics in order to provide a pre- and post-assessment of student progress each year.
- **Attendance Center Annual Improvement Goals.** Academic goals that indicate the expected gain in performance in the areas of reading and mathematics and may include science.
- **Alignment of Professional Development.** An indication of the professional development to be provided for teachers and how the professional development will improve student achievement.
- **Local Board Approval.** Approval of the method for the provision of financial rewards and goals, assessment measures, and expected annual gain.

Within the above criteria, each participating district created its own design for a team-based pay plan linked to the district’s comprehensive school improvement plan. The intent was that the application plans were to be locally driven. In other words, it was at the local level where decisions were made about the following:

- What measures (for student performance) would be used?
- Who would participate?
- What would be the student achievement goals?
- What indicators would determine progress?
- Who would benefit and by how much if the goals were met?

The program took place during three different academic years: 2001–02, 2003–04, and 2004–05. Table 2 provides general information about the three years of TBVP.

Table 2. Team-Based Variable Pay Program

Academic Year	Number of Schools for Pilot	Number of Schools Earning Awards	Range of Reward Earned	Assessments Used for Student Achievement Goals
2001–02	18	9	\$8,400 to \$44,400	Primarily Iowa Tests of Basic Skills (ITBS) or curriculum-based measures
2003–04	10	7	\$9,600 to \$112,900	Primarily ITBS or curriculum-based measures
2004–05	9	2	\$23,700 to \$32,400	Primarily ITBS or curriculum-based measures

Source: Iowa Department of Education (2002, 2004, 2005)

After the 2004–05 academic year, TBVP virtually disappeared due to lack of funding by the Legislature. Summary reports (Iowa Department of Education, 2002, 2004, 2005) from each of the pilot years are available, but results of the program were mixed. Although teachers seemed to enjoy setting goals and working toward those goals, many were concerned about the measure of their performance being one standardized test taken by students.

In both the 1987 and the 2001 programs, districts submitted plans that addressed broad state criteria. The 1987 Phase III program paid teachers for their behavior (as opposed to their performance per se), and most district plans reflected this emphasis. While the 2001 SATQ legislation was a bold move to tie pay to performance, it lacked an “individual” pay-for-performance dimension. A team-based provision provided rewards in addition to teachers’ normal salary. Furthermore, both efforts fell short primarily because of a lack of state funding. Only the first two steps of the career ladder were actually implemented.

In its first Annual Report, the Institute for Tomorrow’s Workforce recommended that Iowa fund the 2001 Student Achievement and Teacher Quality Program to complete the state’s commitment to the bold professional teacher performance and compensation model, including conducting an examination of college and university faculty salaries for competitiveness, adopting a primary goal of improving teaching and learning across the board, becoming more competitive in recruiting talented professionals who might otherwise leave the state or pursue another profession, and immediately raising the minimum teaching salaries to a range of \$32,000 to \$40,000 with a goal of moving from 41st nationally to 25th in average teachers’ salaries.

Recommendation

The recommendation below is only one in a series of three recommendations offered in the final policy report prepared by Learning Point Associates titled “Creating a 21st Century Policy Framework for Student Learning: A Bold Plan to Support Innovative Changes in Iowa’s Education Systems.” We believe the full set of recommendations considered together provide a stepping stone to position the Institute for Tomorrow’s Workforce and the Iowa General Assembly to tackle some of the state’s most fundamental educational issues and thereby ensure Iowa is positioned to provide a world-class education to all of its learners. As mentioned in the introduction, the recommendation below outlines for the Pay-for-Performance Commission a career ladder approach as well as teacher compensation issues that need to be addressed in order to move forward with implementing pilot programs.

Recommendation: Implement a career ladder to provide teachers with compensation for career advancement.

Implement a career ladder to enhance recruitment and retention of quality teachers as a foundation for learner performance. Immediately raise teacher salaries to the national average. Begin to implement the pay-for-performance demonstration sites as outlined in HF 2792. Together, these initiatives will allow the state to be competitive in recruiting and retaining talented professionals.

Presently, local school districts in Iowa and elsewhere typically employ a two-dimensional salary system. On one hand, promotion to higher rank and status almost inevitably removes one from the classroom to become an administrator. On the other hand, activities for which present-day pay practices compensate teachers—years of experience, state certification, and added college courses beyond a bachelor’s degree—have little or no empirically supported relationship to gains in student achievement.

No longer should an Iowa teacher have to choose between the rewarding activity of elevating students’ understanding and skill in a classroom and, alternatively, either leaving teaching altogether or having to become an administrator to earn the standard of living and quality of life to which many reasonably aspire.

The purpose of a career ladder is multifold. First, it aims to recruit larger numbers of able individuals into teaching by offering a higher entry-level salary. To aid retention, a teacher has the option of an annualized salary that compresses the time needed to advance to higher salary levels and (when combined with a pay-for-performance plan) offers an opportunity to earn even more through individual and collective efforts. Second, the career ladder aims to justify teacher pay on a more rationally defensible basis than the current single-salary schedule system, which overrewards experience, advanced college credits, and certificates.

Efforts to achieve these twin objectives, a career ladder and an instructional performance reward structure, should take advantage of the substantial prior progress that Iowa made toward development of a career ladder for teachers. This progress includes having already designed a spectrum of conditions and processes by which an Iowa teacher could progress through a

multistage career ladder and builds on that progress by paying higher salaries to teachers and rewarding those who meet or exceed specified performance goals with annual bonuses. The previously developed career advancement criteria contained an appropriate mix of professional judgment and student performance criteria. Following are details pertaining to each step of the proposed career ladder as well as suggested award strategies for teachers based on performance.

Career Ladder Proposal

- **Beginning Teacher.** The provisions of the SATQ Act (2001) for a “Beginning Teacher” shall apply except that the minimum salary shall be \$35,000 for teachers in hard-to-staff schools and in subject areas where there is a shortage. The minimum salary for all other teachers will be \$32,000. For each succeeding year, the minimum salary shall be at least the 40th percentile of teachers nationally in their second year of teaching.

In addition to mentoring as otherwise provided in SATQ, each beginning teacher shall receive direct support with classroom management, in understanding the local academic standards, and in using student assessment data and other diagnostic tools available in the school and district. A beginning teacher who is not promoted after three years shall be terminated.

- **Career Teacher.** The SATQ provisions for a “Career Teacher” shall apply and the teacher’s salary shall be increased by \$10,000 above the “Beginning Teacher” level. Upon entering a career development program, the teacher shall demonstrate that he/she understands local standards and benchmarks for his/her subject or grade level and, with support of his/her immediate supervisor, shall commit to student achievement goals, which result in year-end academic growth for the majority of students receiving instruction.
- **Career II Teacher.** Teachers may enter the “Career II” level after at least four years of successful teaching and the minimum salary shall be \$20,000 above “Career Teacher” minimums.

The SATQ provisions for a “Career II Teacher” shall apply. Career II teachers must implement a program of teaching and learning that meets the needs of students receiving instruction and that incorporates 21st century skills, local academic standards, leadership development, and applied learning. The teacher shall demonstrate that he/she understands the local standards and benchmarks and the measures to be used and with the support of his/her immediate supervisor, shall commit to student achievement goals that result in year-end academic growth for the majority of students receiving instruction.

- **Advanced.** A teacher may become an “Advanced Teacher” as described in SATQ. The minimum salary shall be \$30,000 above the “Career II” minimum. An Advanced Teacher will meet the instructional provisions of a Career II teacher but may be asked to provide leadership among colleagues in his/her school or across the district, including modeling professional practice that demonstrates strategic pathways to superior year-end academic growth for students. A state-level review panel shall determine eligibility for the “Advanced Teacher” status.

Moving from one rung on the career ladder to another would occur using the same process as is currently outlined in the SATQ provisions. Moreover, the demonstration projects will provide

the state with information on the extent to which unique approaches to measuring teacher performance (see Table 3) are valid, reliable and useful for teachers and administrators. Allowing time for multiple performance measures to be tested in pilot sites across the state will result in a more rigorous and appropriate platform for statewide implementation of the career ladder.

Pay-for-Performance Demonstration Sites Proposal

With approval from the local bargaining representative(s), if any, school districts that opt into the career ladder program in the first year (FY 2008), may additionally apply for participation as a pay-for-performance demonstration site.

The application must show how a bonus or incentive above the teacher’s basic pay grade (or group) would link to student performance using multiple measures of student achievement and include available growth on standardized test results. Table 3 illustrates how school districts might design a proposal for participation in the demonstration sites.

Table 3. Proposed Pay-for-Performance Plan for Iowa

Award Strategy	Target	Additional Pay Range	Means for Determining Eligibility	Form of Pay
I. Student value-added reward	Individual	3% to 5%	<ul style="list-style-type: none"> Multiple measures of student performance that demonstrate progress in meeting state standards. 	<ul style="list-style-type: none"> Annual bonus Base salary addition or acceleration
II. Teacher appraisal-based reward	Individual	3% to 5%	<ul style="list-style-type: none"> Peer or peer and supervisor appraisals of teacher performance and (possibly) knowledge and skills. Acquisition of attributes specified as abetting district or school pursuit of higher student achievement. 	<ul style="list-style-type: none"> Bonus Base salary addition or acceleration
III. Whole-school reward (inclusion of classified employees optional)	Group	3% to 5%	<ul style="list-style-type: none"> Multiple measures of student performance, including student test scores that demonstrate progress. Other? 	<ul style="list-style-type: none"> Annual bonus
IV. Hard-to-staff rural schools and subject area shortages	Individual	5% to 10%	<ul style="list-style-type: none"> Market factors applied to specified shortage definitions. 	<ul style="list-style-type: none"> Annual bonus

As mentioned earlier, in situations where teachers are a part of a teachers association or union, there can and should be a role in the development of pay-for-performance plans and the goals of

those plans (Odden, Kelley, Heneman, & Milanowski, 2001; Milanowski, 2002). This collaboration may take place under the normal auspices of the collective bargaining process (which can sometimes be adversarial) or outside the boundaries of the negotiation procedure. In places where details for a pay-for-performance program were negotiated during the collective bargaining process (Denver, Minneapolis, Nashville), relationships between teachers and administrators were based on a great deal of trust and shared vision before and during the planning process (Milanowski, 2002). Following are several examples of pay-for-performance programs that were designed in collaboration with teachers unions:

- **Denver ProComp.** ProComp is a bargained agreement between the Denver Public Schools and the Denver Classroom Teachers' Association (DCTA). The DCTA Board of Directors and president are members of the organization of ProComp development initiatives. ProComp provides teachers the opportunity to earn financial awards based on: (1) knowledge and skills, (2) professional evaluation, (3) market incentives for teaching in hard-to-staff schools and subjects, and (4) student achievement using a combination of teacher-established objectives and school-based bonuses for group achievement.
- **Douglas County, Colorado.** Details of the Douglas County program were designed through a 30-member performance pay committee and took place outside of the normal collective bargaining process although the contract articulated an agreement to jointly develop the plan. The Douglas County plan is a combination of the basic salary structure and a series of incentive bonuses. In order to be eligible for an increase, teachers must receive a satisfactory performance evaluation. The bonus part of the program includes five types of incentives: (1) outstanding teacher, (2) skill blocks, (3) master teacher, (4) group incentives, and (5) responsibility pay.
- **Minneapolis "Alternative Teacher Professional Pay System."** This program is also part of a collective bargaining agreement. The program, among other things, protects the basic salary schedule except *steps* (achieved by a combination of experience, implementing professional development plans, and maintaining a professional portfolio) and *lanes* (indicated by National Board Certification, subject-area specific master's degrees, and specialization in areas of district need).

Implementation Guidelines

Outlined in this section are the necessary steps Iowa should take to move the above recommendation forward. To the best of our ability, we have identified who should be responsible for implementing the recommendation as well as the challenges and costs associated with the recommendation.

Detailed design of the twin remuneration components, career and progress/performance, should be the responsibility of the Iowa Department of Education. However, components of such strategies will necessitate legislative approval and financial appropriations.

Following an Iowa Department of Education–directed design phase in the first quarter of 2007, legislative deliberations should proceed during the second quarter of 2007. Assuming approval and sufficient funding, then the Iowa Department of Education should rely upon already approved district-level pilot projects to establish and appraise the consequences of what, in effect, would prove to be a statewide minimum teacher salary schedule. These statewide minimums, involving both a career ladder and performance reward components, after being phased in would replace the single salary schedules presently employed by Iowa school districts

Local school districts would have an option of elevating teacher pay higher than the state proscribed minimums but would not be able to offer a lower amount at any particular rung on the career ladder. State school finance subventions would provide each local district or administrative area with an equalized financial wherewithal to ensure fiscal ability to meet minimal salary schedule levels.

Immediate Next Steps

- Enact criteria and implement a statewide performance-based career ladder building on the elements of the Student Achievement and Teacher Quality Act of 2001. This strategy should combine measures of professional growth with student progress to result in a teacher compensation plan that links teacher pay with student progress (pay for progress).
- Allow local school districts to elevate teacher pay to an amount higher than the state-proscribed minimums, but mandate they not offer a lower amount at any particular rung on the career ladder. The state should ensure local fiscal ability to meet minimal salary schedule levels.
- Require school districts to partner with and receive approval from their local bargaining representative(s), if any, should they decide to opt into the career ladder program in the first year (FY 2008). Assuming approval and sufficient funding for statewide career ladder implementation, development of performance measures should begin in the demonstration sites in FY 2008, and the career ladder adoption should be fully implemented within three years.
- Provide an opportunity for local school districts to test the value of incentives in research and demonstration sites; in essence, carry out the pay-for-performance program authorized in HF 2792.

- Empower the Iowa Department of Education with the necessary resources to provide technical assistance.

The Iowa Department of Education should be authorized to undertake the following practical steps in time for legislative consideration in 2007 and implementation beginning in the 2007–08 school year. Table 4 shows the proposed implementation timeline.

Table 4. Proposed Implementation Timeline

Activity	Agency	Time Frame
Detailed pay plan design (including linking career ladder rungs and performance bonuses to Iowa economic conditions)	Iowa Department of Education	January–2007
RFP for 10 districts to develop and pilot pay-for-performance measures	Pay for Performance Commission	January–April 2007
Legislative consideration of career ladder plan	Iowa General Assembly	February–March 2007
Communication to Iowa school districts	Iowa Department of Education	April–August 2007
Local district implementation and sustained appraisal of career ladder and pilot project operation	Iowa Department of Education	September 2007

Estimated Costs

Costs will depend upon competitive salary ranges established for each career ladder rung and the magnitude of the proposed performance bonuses. About \$300 million in excess of present expenses is estimated for a statewide transition to a career ladder and set of performance reward components

Evaluating the Effects of Career Ladder and Pay-for-Performance Initiatives

Arrangements will be needed continually and systematically to appraise the operational consequences and strengths and weaknesses of both the proposed career ladder system and the pay-for-performance system. This appraisal can be undertaken by a state agency. However, it also can be undertaken through a contract to a reputable program evaluation firm or agency. Regardless of the specific pay-for-performance system that is piloted, each should be carefully followed with good data systems to ensure that midcourse corrections are possible.

Conclusion

This report offers Iowa's Pay-for-Performance Commission information on teacher compensation and career ladder issues that need to be addressed in order to move forward with the pilot programs. The report presented an overview of pay-for-performance for the nation and the state of Iowa as well as a specific policy recommendation and implementation guidelines around a teacher career ladder and proposed award strategies based on performance, which work in tandem. The career ladder builds off of Iowa's SATQ legislation, is linked to bringing all teacher salaries up to the national average, and aims to justify teacher pay on a more rationally defensible basis than the single-salary schedule system, which overrewards experience, college credits, and certificates.

References

- Education Commission of the States. (2001). *Pay for performance: Key questions and lessons from five current models*. Denver, CO: Author. Retrieved December 29, 2006, from <http://www.ecs.org/clearinghouse/28/30/2830.htm>
- Farkas, S., Johnson, J., & Duffett, A. (with Moye, L., & Vine, J.) (2003). *Stand by me: What teachers really think about unions, merit pay and other professional matters*. New York: Public Agenda.
- Flax, E. (1988, March 16). Few Iowa districts tied higher pay to performance. *Education Week*. Retrieved December 29, 2006, from <http://www.edweek.org/ew/articles/1988/03/16/07490037.h07.html?print=1>
- House File 2792. (2006). *HF 2792 pay for performance language including line-item vetoes*. Des Moines, IA: Iowa General Assembly. Retrieved December 29, 2006, from http://www.dom.state.ia.us/pfp_commission/docs/HF2792_PFP_Commission_Language.pdf
- Iowa Department of Education. (n.d.). *Introduction to team-based variable pay*. Retrieved December 29, 2006, from <http://www.iowaccess.org/educate/ecese/tqt/tc/doc/intro.pdf>
- Iowa Department of Education. (2002). *Team-based variable pay: Report of the Iowa pilot project*. Des Moines, IA: Author.
- Iowa Department of Education. (2004). *Team-based variable pay: Report of the Iowa pilot project*. Des Moines, IA: Author.
- Iowa Department of Education. (2005). *Team-based variable pay: Study update*. Des Moines, IA: Author.
- Iowa Legislative Fiscal Bureau. (1997). *Educational excellence* (Issue review). Des Moines, IA: Author. Retrieved December 29, 2006, from <http://www.legis.state.ia.us/lsadocs/IssReview/1997/IR120F.PDF>
- Iowa State Education Association. (2004). *Historical timeline*. Des Moines, IA: Author. Retrieved December 29, 2006, from http://www.isea.org/media/150th_anniversary/historic-timeline.pdf
- Learning Point Associates & The Teaching Commission. (2005). *Teachers off the record*. Naperville, IL: Learning Point Associates. Retrieved December 29, 2006, from <http://www.learningpt.org/evaluation/record.pdf>

- Milanowski, A. (2002). *The varieties of knowledge and skill-based pay design: A comparison of seven new pay systems for K–12 teachers* (Research Report Series RR-050). Philadelphia: Consortium for Policy Research in Education. Retrieved December 29, 2006, from <http://www.cpre.org/Publications/rr50.pdf>
- Odden, A., Kelley, C., Heneman, H., & Milanowski, A. (2001). *Enhancing teacher quality through knowledge- and skills-based pay* (Policy Brief RB-34). Philadelphia: Consortium for Policy Research in Education. Retrieved December 29, 2006, from <http://www.cpre.org/Publications/rb34.pdf>
- Senate File 476. (2001). *An act relating to the establishment of a student achievement and teacher quality program and providing for contingent effectiveness*. Des Moines, IA: Iowa General Assembly. Retrieved December 29, 2006, from <http://www.legis.state.ia.us/GA/79GA/Legislation/SF/00400/SF00476/Current.html>
- Wolkoff, M. (2006). *Is Iowa teacher pay adequate?* An unpublished report prepared for Learning Point Associates.

Appendix

Is Iowa Teacher Pay Adequate?

Report Submitted by:

**Michael Wolkoff, Ph.D. University of Rochester Rochester, New York 11/15/2006
Summary**

This report examines teacher compensation from a number of different perspectives. We find that although average, Iowa teacher pay is in the bottom quintile of states nationally, it falls in the middle of the states that comprise Iowa's labor market region. Relative to other occupations in the state, Iowa's teachers are paid competitively. Fringe benefit levels in Iowa are also competitive at the national and regional levels. Pupil teacher ratios are far lower than the national average and could provide a source of additional teacher pay. Not surprisingly, given the competitiveness of teacher pay, Iowa does not suffer from high levels of teacher mobility. Within the state of Iowa there are limited movements of teachers across districts and district types. Even though pay in rural districts is on average lower than more urbanized districts, few teachers change jobs. The Iowa teaching force is dynamic, characterized by higher attrition rates at the lower and older ages. Nevertheless, it is projected that Iowa will be able to maintain the teaching force at its AY2006 levels. To the extent that statewide and regional averages may mask specific problem areas, innovations in teacher pay flexibility and rewards would help mollify any difficulties.

Introduction

Is teacher pay adequate in Iowa? The answer to this question will depend very much on whom you ask and what you mean by adequate. From the perspective of many teachers in the system, teacher pay is inadequate to provide for the lifestyle to which they would like to obtain. For some school administrators, the assessment of teacher pay adequacy is tied to their success in hiring new and replacement staff. Taxpayers view pay adequacy in the context of what else they

may do with their hard earned dollars, and for some, when comparing the pay they receive to the compensation teachers achieve working a much shorter year. From the economist's perspective the answer hinges on whether the compensation provided is adequate to attract and retain personnel of sufficient quality to deliver the state's intended educational program.

Because of these varying perspectives, it is no easy job for a state legislature to decide how much funding to provide for teacher salaries. Nor would it be any easier for a judge, or a group of special masters appointed by the Court, to make such a determination. The choice involves trade-offs, weighing the gains to one group and the losses to another. Compounding the difficulty in making this decision is that no single indicator exists that can definitively establish the adequacy of teacher pay. Rather, we choose to examine a multiplicity of indicators as a way of aggregating the totality of the evidence. We discuss the various measures below.

Teacher Pay Comparisons

The ability of Iowa school districts to attract and retain teachers will depend, in part, on the compensation offered to its teaching staff. Most analyses of the adequacy of teacher pay begin by placing teacher pay in the context of pay for teachers elsewhere. Unfortunately, no perfectly reliable data exist to make this comparison, although the development of such a data set is currently on the NCES agenda. The most common comparisons are made using the AFT salary survey data which have been criticized for a number of flaws. Nevertheless, at the moment they are the standard starting point for comparisons. The most recent American Federation of Teacher's salary survey ranked average teacher pay in Iowa 42nd nationally in AY2003-04.

This represents a decline from the 32nd position it occupied in AY1996-97.

Although Iowa ranks below the median on national comparisons, its average pay is not out of line with surrounding states. Within the Plains region, Nebraska and Kansas pay higher, Missouri, North Dakota and South Dakota lower. The contiguous state of Wisconsin pays higher and Minnesota pays even higher. Illinois, a much more urbanized state, pays higher than any other state in the region (Chart #1).

The simple comparison of average teacher salaries used by the AFT may be misleading because average salary differences may reflect differences in the characteristics of the workforce.¹ For example, higher wages may reflect an older and better-educated workforce, rather than a more generous salary schedule. Indeed, the 2002-03 AFT salary survey indicates that Iowa teachers are the most experienced in the region, suggesting that Iowa's salary ranking might be somewhat lower if pay were evaluated for teachers with the same experience. We can control for experience level of a small subset of teachers by examining the pay of beginning teachers, most of whom will have similar levels of prior teaching experience. The AFT data indicate that Iowa ranks in the middle third of the regional distribution in terms of the level of beginning teacher pay (Chart #2).

Teacher education is the other primary driver of teacher pay, so accurate pay comparisons should also control for this factor. Unfortunately, the AFT doesn't provide data that would allow us to make further adjustments for state by state variation in teacher education levels. A detailed comparison of actual teacher salary schedules would provide this information² but such an analysis is extremely difficult for Iowa as Iowa alone has over 500 school districts.

Based on the AFT data we conclude that Iowa's average salary ranks in the middle third of regional states, although the average salary teacher comparison is somewhat problematic because Iowa's ranking in the AFT survey reflects both its salary structure and the human

capital of its teachers.

The AFT also attempts to compare teachers after controlling for the cost-of-living in each state, as an effort to arrive at “real” compensation. These comparisons are undoubtedly imperfect, as no reliable interstate cost of living index has been created. The available measures are unable to distinguish a location’s amenity value from its differential cost factors. The AFT cost measure is particularly flawed in this regard, although it is beyond the scope of this work to identify what direction the bias runs.

¹ Most teacher salary schedules reward education and experience. Recommendations stemming from the complete LPA study, of which this is a part, would introduce performance elements into the setting of teacher pay.

² Wolkoff and Podgursky (2002) were able to conduct a salary schedule analysis in Wyoming, in part, because Wyoming only has 48 school districts. Not only does Iowa have a large number of districts, but so does Nebraska which would be one of Iowa’s comparison states.

Nevertheless, when teacher compensation is adjusted by the AFT cost index, we find that Iowa’s pay is now ranked 23rd nationally, reflecting a lower cost of living in Iowa as measured by the AFT index. Charts 1 and 2 also compare Iowa’s AFT cost of living adjusted pay to other states in the region. The cost of living adjustment generally results in Iowa’s real pay ranking higher than its nominal pay ranking.

A different measure of Iowa’s pay effort is provided by Dr. Lori Taylor in a recent article in the journal, *Education Finance and Policy*. Making use of a series of econometric estimations, Taylor finds that the cost of purchasing the same quality teaching resources in Iowa is 83.8% of the national average. Iowa teacher pay averages 86% of the national average teacher pay, indicating that Iowa has been willing to invest more money in teaching resources than the average national effort would require.

Although changes in teachers pay will undoubtedly have an impact on teacher standards of living, whether it will change the characteristics of the teacher work force is highly questionable. One might ask how effective pay raises would be in changing the composition of the teaching work force? For example, if a rural Iowa school district raises its pay to the level of San Francisco, will it attract teachers from Northern California? Or is the teacher’s choice to settle in a certain community determined by many factors other than the real compensation paid?

The fact is that teacher labor markets are overwhelmingly local. Using U.S. Census data we find that in the year 2000, only 3000 teachers working outside the state of Iowa report being resident in Iowa 5 years previous. This amounts to an average out-migration of 600 teachers per year. This represents only about 2% of the 30,000 teachers working within Iowa. Of those teachers resident in Iowa 5 years previous, who are now working elsewhere, nearly 50% work within the 9 states contiguous to Iowa or in the Plains region. Despite high pay levels, only 97 teachers report working in New York or New Jersey and no teachers report working in Connecticut. Clearly, higher nominal teacher pay is not driving teacher location decisions. The local nature of teacher labor markets is further corroborated by recent research making use of a detailed data set of NYS teachers. A well cited study of NYS teachers finds that the majority of teachers take teaching jobs within commuting distance of the location of where they went to high school. (Boyd, Lankford, Loeb, Wyckoff).

The local nature of teaching labor markets means that cross state pay comparisons are of

limited usefulness, particularly when comparisons are made with those states far away, operating in very different labor markets, and with different cost conditions. The preponderance of teacher locations do occur locally, thus a regional wage comparison is of some relevance.

Comparison with other Professions

Further evidence on the adequacy of teacher pay can be inferred from a comparison of teacher pay to pay in other, competing professions. Labor markets are fluid and workers have multiple options in choosing a career, as well as switching careers. Unless teacher pay is competitive with the other employment opportunities that future teachers might have or existing teachers can migrate too, school districts will not be able to hire and retain an adequate work force.

As a start we use the AFT data to explore this relationship. At the aggregate level, average teacher pay can be compared with average private sector pay. This is a gross measure in that it includes all private sector jobs, not just those that might be viewed as alternative employment opportunities for teachers. Indeed, the mix of jobs that teacher wages are being compared to consists of many that require much less skill and training, and others that require more. Nevertheless, the AFT comparison is made in the same manner across all states and provides a perspective on the competitiveness of Iowa pay. The data indicate a 27% premium to Iowa teachers relative to private sector workers (without accounting for the considerably shorter work year that teachers enjoy), which ranks as the 26th largest premium nationally. This is a far better ranking than the ranking of average pay (42nd nationally). Thus, Iowa teachers are paid relatively better when compared to private sector workers, than are teachers in many other states.

The AFT comparison of Iowa teacher wages to other private sector workers can be improved by examining pay in employment categories teachers are likely to consider as alternative occupations, and by making use of more recent data provided by the U.S. Bureau of Labor Statistics. The most recent Occupational Employment Statistics (OES) data available are from May 2005. The Occupational and Employment Survey reports average hourly earnings for a number of occupational titles, including teachers.

To improve upon the average wage comparison provided by the AFT we elect to choose a sample of comparable occupations to compare with teachers. Ideally, we would base our comparison on occupations that draw their labor supply from a similar pool of workers as does teaching. A skills-based comparison would probably be the most direct way to make this determination. However, BLS does not provide data in that manner. Rather, data are reported for occupational categories. While not all researchers agree that a job content analysis is a desirable way to define a labor market, as a first approximation I make use of the categorization of Allegretto, Corcoran, and Mishel (“How Does Teacher Pay Compare?”), based on Pierce (1999), to identify occupations most similar to teaching. This determination is made by identifying a set of factors common to both teachers and the comparison occupations: knowledge, supervision received, guidelines, scope and effect, personal contacts, purpose of contacts, physical demands, work environment, and supervisory duties. Occupations whose composite score on these criteria is similar to teachers include: clergy, reporters, vocational counselors, personnel officers, computer programmers, registered nurses, accountants, architects, occupational therapists, underwriters, forestry scientists, archivists, and technical writers. While not everyone would agree that these are the “right” occupations for comparison, they do bracket

a wide spectrum of employment opportunities.

A few caveats to the data: First, not all of these occupational categories have sufficient density of workers in Iowa for OES to report wages and still maintain confidentiality requirements. I report the results for those occupations for which data are reported. Second, the data do not include fringe benefits. Given the universality of retirement and health care benefits provided public school teachers, the consequence is to likely understate the actual compensation package teachers receive relative to other employees. Third, the hourly data are not perfectly comparable for teachers as teacher wages are reported as annual salaries. To make the hourly wage comparison we must convert annual salaries into hourly earnings. In most states, a typical teacher contract requires 180 work days. At 8 hours per day, this would translate into 1440 hours annually. Some contracts require professional development beyond this total. Further, undoubtedly, many teachers work beyond their actual workday (although, so do many other of the comparison occupations). How employee vacation time is measured can further distort the comparison. Without engaging the entire debate, I have chosen, as an upper bound of teacher work hours, to assume that teachers work on average 1800 hours annually. This would translate into a 40 hour work week for 45 weeks a year, effectively crediting teachers with a full 7 weeks of relief time during the summer. This is an extremely generous estimate of the teacher worker year and likely to bias the hourly wage calculation downward. To the extent that the teacher work year is shorter, my calculations understate the true average hourly earnings of teachers. Similarly, to the extent that other workers typically work greater than a 40 hour work week, and the work year is the assumed length, I have overstated non-teachers' wages. As an alternative calculation I also provide the implicit hourly wage if teachers work 1600 hours annually. This is the equivalent of a 200 day work year.

A fourth caveat to the OES data is that the reported teacher salary levels are based on elementary school teachers. The OES data indicate the average pay for elementary school teachers is 10% lower than the average Iowa teacher annual earnings reported by the AFT for a school year two years earlier. Thus, the OES data are likely understating the compensation teachers are receiving. Caveats aside, we generally find that teachers are paid approximately in the middle of the occupational range. It is also worth noting that the 1600 hour and 1800 hour calculations bracket the 27% premium of teacher pay to private pay found in the AFT 2003-04 data. (Chart #3)

In addition to the state average pattern I have also presented a series of charts comparing Iowa teacher pay to this same set of occupations in each of the metropolitan area that the OES data are reported (Charts #4-12). Because of the lower population densities, some occupational comparisons are not provided as OES excludes them to maintain confidentiality. The pay comparison pattern does vary somewhat depending on what part of the state you examine. Teacher in Ames, Davenport, Sioux City and Omaha-Council Bluffs are relatively well paid in comparison to the selected occupations. Teachers in Des Moines and Iowa City are more nearly in the middle of the pay distribution. Teacher compensation is lower in Cedar Rapids, Waterloo-Cedar Falls and Dubuque. Whether this is a consequence of the specific characteristics of the teachers, and other workers, in these metropolitan areas, or a consequence of different pay scales is not discernable from these data. We remind the reader that the comparisons in these charts solely focus on a portion of the pecuniary elements of employment. These data fail to include fringe benefit levels. We also have no independent measure of the various non-pecuniary elements that might enhance the workers view of their job. Of particular note for teachers is the tremendous flexibility of work schedule, allowing summers and major holidays off, ending work

early in the day, and being closely in tune with the schedule of school children, of whom many teachers are parents.

Fringe Benefits

An assessment of pay adequacy should incorporate all components of pay – wages, fringe benefits, and working conditions. Systematic data on these various components are rarely available, particularly given the tremendous variation in employer provided health and retirement benefits. Even a comparison of Iowa teachers would be difficult given the wide range of choices made by the hundreds of school districts within the state.

To address this issue I make use of the Common Core data available from the National Center for Educational Statistics. The Common Core data do not permit a direct comparison of teacher fringe benefits across states. However, the data do report instructional expenditures for salary and fringes. This can be used to calculate the percentage of salary expended for instructional purposes that is expended on fringe benefits. Because teachers are not uniquely involved in instructional activities this measure will only give us a precise comparison if the fringe benefit rate of instructional personnel who are not teachers is the same as the fringe benefit rate for teachers in each state, or if these rates vary the same way across states. Because the preponderance of instructional salaries is spent on teachers, this measure of fringe benefit generosity should be fairly accurate, whether or not the fringe benefit rate is similar for all employees. Chart #13 shows that when compared with the 8 other regional states comprising the Iowa labor market, and when compared with the US as a whole, the fringe benefit percentage paid in Iowa is at the high end. Iowa's fringe benefit rate improves its compensation standing against all states in the region other than North Dakota and Wisconsin. Wisconsin is the one true outlier here, expending over 42% on fringe benefits when the national average is more than 25% lower.

Working Conditions

In general, systematic national data on working conditions does not exist. However, one aspect of working conditions that can be examined is pupil teacher ratios. For the past three decades pupil teacher ratios have generally declined, undoubtedly as a result of the belief, and research findings from the STAR experiment, that smaller class sizes will result in higher educational quality.³ The STAR results, while not without controversy, suggest that reduced class sizes are most valuable for younger, at-risk children. However, class size reduction is expensive and whatever educational gains are achieved come at significant budget cost.

One important implication of smaller class sizes is that more teachers have to be hired to handle the same number of children in the system. The same budgeted resources divided among a larger number of teachers necessarily means lower average teacher pay. Iowa's pupil teacher ratio is lower than both the regional average and the national average (Chart #14). Had Iowa maintained the same pupil teacher ratio as the national average pupil teacher ratio, Iowa teacher pay might have been 15% higher. Using the 2003 Common Core data we find that Iowa pupil teacher ratios are exceeded by all states in the region with the exception of Nebraska, South Dakota and North Dakota (all of whom have relative low average teacher salaries) (Chart #15). The Iowa ratio is 15% lower than Minnesota, which has the largest ratios in the region. This 15% differential is larger than the 12% pay differential that exists between the two states. This

differential in pupil teacher ratios has been exacerbated over time. Only North Dakota pupil teacher ratios shrank at a faster rate than Iowa during the most recent 5 year period

³ The STAR experiment is often cited as providing conclusive evidence of the value of reducing class size. For a critique of these results see Hanushek (1999).
for which data are available. Iowa's ratio shrank at twice the national rate from 1998-2003 (Chart #16).

Turnover and Mobility

One indication of the adequacy of teacher compensation is the level of turnover in the workforce. Compensation systems that are competitive with other employment options will generally be more successful at retaining their workforce.

At the aggregate level we can compare teacher turnover in Iowa to teacher turnover in the other states within its labor market and to labor turnover in the entire United States. The most recent School and Staffing Survey (SASS) data that can be used for this purpose cover the 1999-2000 school year. Chart #17 shows that Iowa is in the middle of the regional distribution in terms of turnover rates. Approximately 5% of Iowa teachers leave teaching each year and approximately 8% of teachers transfer from one teaching job to another. This compares to the national average turnover rate which is approximately 1 percent point higher in each dimension. Turnover rates do not vary greatly within the region, with the exception of the state of Wisconsin, whose rates are particularly low.

Further measures of compensation adequacy can be gleaned from examining the mobility data contained within the Public Use Micro Sample from the 2000 Census of Population. Before making these comparisons we note that all mobility discussions should be made within the context of the mobility of the entire Iowa population. U.S. Census data indicate that Iowa suffered an average population decline of .7% annually from 1990-2000. This decline accelerated to 4% annually from 2000-2004. It is reasonable to assume that the migration rate accelerated during the last half of the 1990-2000 decade which coincides with the PUMS data. Thus, reflecting a more general trend, if teachers were to behave like their fellow Iowa citizens, we would expect some out migration of teachers during this time period.

To conduct this analysis we examine the percent of teachers in a state that were living in that state 5 years previously. We'd expect that states with non-competitive pay structures would experience much greater outflow rates. Over 80% of teachers working in Iowa in the year 2000, lived in Iowa in 1995 (Chart #18). This places Iowa just below the median of the 9 regional state comparison grouping, but its retention rate is just marginally below the median state – Missouri. Consistent with its low teacher turnover rates, Wisconsin has the highest retention rate. A related measure calculates the percentage of teachers under the age of 25 that were living in the same state 5 years previously. Potentially, this is likely to be a more sensitive measure of labor market competitiveness as the migration rates for younger people tend to be a good deal higher than for the population as a whole. Younger teachers are not as encumbered by family obligations, nor are they in the midst of their careers, at which point mobility could have deleterious effects on their pensions. These rates will also be affected by the availability of teacher training facilities in the state and the annual number of teaching jobs becoming available.⁴ Once again, Wisconsin dominates this list of regional competitors with nearly 85% of its young teachers having lived in the state

5 years previously (Chart #19). Iowa is in the top third of the regional comparison states for this measure, with the percentage of young teachers remaining in the state hardly different from the percentage of all teachers.

We can also use the PUMS data to track teacher flows between specific states. Chart #20 compares teacher imports and exports to and from Iowa from 1995-2000. The chart compares the current location of public school teachers with what state they were in 5 years previous. Nearly 50% of those teachers working in 2000 that were resident in Iowa 5 years earlier, migrated to one of the 8 other states in the Iowa labor market. If we expand the group of states to include California and Texas, locations to which many Iowa residents migrate, this accounts for 70% of the exported teachers.

Looking at exports provides only a partial picture of the Iowa teacher market. Not only do teachers leave Iowa for other states, but many choose to move from other states to Iowa. The PUMS data allow us to look at Iowa teacher imports. We find that within the regional labor market, imports during this time period were 91% of exports, leaving a net, within region deficit of 129 teachers. Thus, the regional net teacher outflow averages 26 teachers per year. The five year total accounts for less than .5% of the annual stock of Iowa teachers. The entire net exports of teachers totaled 243 for this 5 year period. Total 5 year net exports represented less than 1% of the stock of teachers in any given year.

Internal Migration

A relatively small proportion of teachers move between states. Administrative data from the State of Iowa allows us to track teachers within the state of Iowa. Chart 21 follows Iowa teachers for two transition years, from AY 2004 to AY2005, and from AY2005 to AY2006. Evident from this chart is the tremendous stability in Iowa's teaching force. Nearly 90% of Iowa's teachers remain teaching in the same school in the subsequent year, an additional 5% or so switch schools and stay within the same district. Only 2-3% of teachers elect to switch districts. The remaining 7% or so leave teaching in Iowa, either temporarily or permanently.

Although the Iowa teaching work force shows a great deal of stability in aggregate, it is possible that these aggregate results mask varying different experiences within the state. To examine this issue I make use of the Common Core Data locale codes which categorize Iowa school districts into 7 different categories ranging in population density.⁵ Using AY2005 and AY 2006 data I find that teachers who continue teaching, irrespective of where they teach, are extremely likely to continue teaching in

⁴ Iowa higher educational institutions have graduated more than 3000 students annually over the past 5 years who could qualify for Iowa licensure. This exceeds the number of hires made in AY2006, a year of considerable staff expansion.

⁵ Most Iowa school teachers are found in more rural locations: small towns (18%), rural areas outside MSA's (26%) and rural areas inside MSA's (15%). 24% of teachers are found in mid-size cities and 12% in the urban fringe of mid-size cities.

the same locale code category the following year. Retention rates by locale type range from 96.7% in rural districts outside MSA's to 98.2% in the urban fringe of large cities. When we examine the percentage of teachers who leave teaching the pattern is not as clear. While from

AY2005 to AY2006, we find that mid size cities are the most likely to experience turnover at 9.6%, they were the least likely from AY2004 – AY2005 at 5.8%. Thus, no clear pattern emerges from this categorization. At the school level, retention rates for those who continue teaching are also quite high. Most schools retain 95% of staff, with the exception of schools in mid-size cities, where the multiplicity of schools within a district makes school transfers much easier, resulting in a retention rate of 91%.

In aggregate, teacher retention issues do not appear to be a major problem in Iowa, neither in aggregate, or in any particular region as defined by population density.⁶ However, similarities in retention rates might mask differential skill levels of those who move. How do the characteristics of those who switch school districts compare those who don't? Not surprisingly, those who switch schools have fewer years of experience and lower salaries than those who are retained. They are, however, quite similar in terms of their highest educational degrees obtained.

Teacher Characteristics

Like most states, the teachers in Iowa are overwhelmingly female and predominately white. Approximately 73% of Iowa school teachers are female, below the national average of 79% in 2001. Over 98% of the public school teachers are white, in a state where approximately 95% of the population is white. Iowa teachers have on average just under 15 years experience, a bit less than a year greater than the national average. At the same time, Iowa's teachers are a few years younger than the national average (43 vs. 46). Iowa teachers are far less likely to hold an advanced degree than the national average (27% vs. 56%). As for the quality of their undergraduate training, the vast majority of Iowa teachers receive their undergraduate degrees from colleges rated competitive by the Barron's index. The major training site is the University of Northern Iowa but the combined graduate total from Iowa State and the University of Iowa is nearly as large. The three institutions, in total, train about 40% of Iowa's teachers.

Teacher gender differs a little across population density. More rural districts are more a bit more likely to have male teachers in the classroom with 30% of their teaching staff male, relative to the state average of only 27%. Only in midsize cities does the racial distribution of teachers deviate from virtually all white. In these locations 4% of the teaching force is minority while the average for the rest of the state is just about 1%.

Teacher age and experience differ little across population density. Teachers in small towns have about 1 year more experience than those in rural areas on average, but these are not significant differences. However, teacher working in rural school districts are paid considerably less. The average salary levels ranges from \$43,792 in mid size cities to \$36,473 in the most rural districts. In part this pay differential reflects the educational training of teachers, as teachers in the most rural district are only 50% as

⁶ Conceivably the pattern might look different if we got down to the school level. The limited time scope of this project does not allow an investigation in such detail. However, we would expect greater variation in experience as the size of the unit analyzed decreases.

likely to possess master's degrees. Since many teachers obtain graduate training on a part-time basis, differences in degree attainment may reflect differential access to graduate training institutions. Despite this 20% differential in average pay, migration rates from the lowest to

highest paying regions were less than 1% of the rural workforce. Less access to graduate training is also likely to impact the certification status teachers in rural school districts hold. While statewide, nearly 19% of teachers are certified as being master educators, requiring 5 years of teacher experience and a master's degree, only 14% of rural teachers hold this level of certification.

Projected Hiring

What are the prospects for Iowa to maintain the size of its teaching workforce in the future? This will depend on a variety of factors influencing the supply and demand of teachers. A detailed examination of this goes beyond the scope of this project as the factors that determine the entry of workers into the teacher ranks simultaneously determine the labor market conditions for other professions. However, we can take a first cut at this issue by focusing solely on the behavior of the existing teacher workforce.

For this exercise we assume that the desired number of teachers in the State of Iowa is 36,320, the AY2006 teacher count obtained from the micro teacher data files provided by the State Department of Education.⁷ My choice of the 2006 employment level is somewhat arbitrary. Iowa employed nearly 1000 fewer teachers just 2 years earlier. Furthermore, enrollment projections for the state of Iowa forecast a 1.67% decline by 2010. Maintaining the same staffing ratio as obtained in 2006, in the light of this enrollment decline would require more than 600 fewer teachers. Nevertheless, for this exercise we fix the teacher count at the 2006 level.

Maintaining this teacher count depends on the rate at which Iowa teachers leave teaching. National data from the SASS placed Iowa turnover at about 5% annually in AY2000. The micro data indicates turnover to be just over 6% in academic year 2006. These rates are average rates across all teachers. In fact, teacher turnover is highest for youngest teachers who have not yet committed to teaching as a career, and for older teachers reaching retirement age. Calculations from the micro data indicate that turnover rates take a sharp increase beginning at age 55, exceeding 14% initially and raising to approximately 30%+ once teachers reach age 60. Similarly, turnover rates are high when teachers are in their 20's, in the range of 8-9% annually.

Since teacher turnover rates differ by age, the number of teachers leaving the workforce in any given year will depend, in part, on the existing age structure. It has been claimed that the age distribution of Iowa's workforce may create a particular problem in this regard. Iowa experienced approximately 2400 departures after AY2004 and 2133 departures after AY2005. In both years hiring was expanded, with many new teachers falling into the younger age groups that have higher turnover rates. The combination of more, newer teachers and teachers approaching retirement age creates a potential staffing difficulty into the future.

⁷ Of these 36,320 teachers, 95% are full time employees, but for this analysis I make no distinction as to their contract status.

To examine this issue I have simulated the age characteristics of the Iowa teaching force, based on recent demographic data. I assume that the age specific departure rates will continue at the average of AY2005 and AY2006 and that the age distribution reflected in the AY2006 "new" teacher data will be the same in the future (new teachers are defined to be those who were

teaching in 2006 but not 2005, thus they include some teachers who are returning to work after spending AY2005, or longer, away from teaching). The simulation consists of calculating how many teachers leave the workforce by age, how many new additions are required to reach the AY2006 workforce level, and then aging each of these workers in place. In the subsequent year we apply the separation rates to the simulated staff, now one year older, and calculate the new number of teachers required to reach staffing levels. Since departing teachers are on average 13 years older than the teachers entering the workforce in a specific year, the age distribution of the entire workforce is changing in a different manner than each employee aging by one year.

The results of these simulations are contained in Charts 22-23. Chart 22 shows that 2006 was a particularly active year in teacher hiring, reflecting the fact that Iowa school districts increased their FTE count by approximately 750 slots. To maintain the size of this workforce would require far less hiring in subsequent years. Hiring demands immediately fall from 2924 in 2006 to 2617 in 2007 and rise gradually to 2796 in 2013. At this point there are enough younger teachers in the system that subsequent year hiring numbers actually decline, to 2681 in 2017, the last year for which I have made calculations. These numbers indicate that teacher departures do rise from the 2004/2005 average by about 350 slots. However, this higher departure level still falls well below the actual hiring level in 2006 which included staff expansion. New teacher additions and the aging of the existing staff does result in somewhat higher departures from the workforce, but the replacement requirements are far below the level currently hired by Iowa school districts. In any event, the high retention rate of Iowa teachers means that most positions teaching positions are occupied by the previous year's occupant (Chart 23).

It appears, absent significant changes in the supply of qualified teachers, that Iowa should be able to staff its classrooms fully into the next decade.

Future Research Suggestions

A number of additional investigations would provide further perspective on the issue of teacher pay adequacy. I discuss a number of them briefly below:

Vacancy and Application Pool

One measure of whether teacher pay is adequate to hire and retain a qualified workforce is the difficulty school districts encounter when trying to fill vacant positions. Unfortunately, Iowa has no ongoing centralized data collection of the period of time positions remain unfilled, what positions remain unfilled, or where these positions are located. Such data would be valuable for identifying hard to staff specialties or locations that encounter difficulty in attracting candidates. Both situations would be amenable for solutions involving flexible pay structures as suggested in the main body of this report.

It would also be valuable to collect data on how many applications school districts receive for each job vacancy. This would provide insight into whether labor supply is adequate. The national experience has been that there are differential vacancy rates by type of position and location of school district. Math, science and special education positions have been harder to fill, as have positions in isolated areas. A more flexible pay schedule would make it easier for school

districts to tailor compensation packages to address any position which are harder to fill.

Pre and Post Teaching Pay

In previous research I have found that new teachers are generally paid higher as teachers than they were paid in their employment immediately preceding their teaching jobs. Teachers who went onto different careers were generally paid no more in their new careers than what they would have received had they continued teaching. I find this general pattern for Wyoming, South Carolina and Alaska. Michael Podgursky finds this result in his study of teacher mobility in Missouri. Stinebrickner, et.al., find the same general result for Georgia. Time and resource constraints make it impossible to conduct a similar analysis in Iowa at this time. Such an analysis would require the merging of payroll data taken from the Unemployment Insurance files, with micro teacher data identifying teacher departure and arrivals. The existing evidence from other states indicates that teacher pay in those states is competitive.

Student Performance

Ultimately, the best measure of teacher adequacy is how well teachers do their jobs, not what characteristics the teachers themselves possess. Recent research on student performance has established that the teacher can make a significant difference in student outcomes (Rivkin, et.al., 2005). Being exposed to a good teacher multiple years in a row can have a significant effect on student learning, in contrast to exposure to a weak teacher.

The question is what makes a good teacher? The research cited above defines good teachers as those who have been able to achieve consistently significant student gains, and weak teachers whose students have achieved gains in achievement below what the average teacher has been able to achieve.

This type of analysis involves extensive, detailed data sets which allow the researcher to link specific teachers with student outcomes over time. In only a few states have such data sets been developed. Iowa as of yet does not collect such data in a form usable for this type of research.

References

Allegreto, Sylvia A., Sean P. Corcoran, and Lawrence Mishel. 2004. How does teacher pay compare? Methodological challenges and answers. Washington D.C.: Economic Policy Institute.

American Federation of Teachers, Survey and Analysis of Teacher Salary Trends (various years)

Boyd, Donald, Hamilton Lankford, Susanna Loeb, James Wyckoff. "The draw of home: How teacher's preferences for proximity disadvantage urban schools," Journal of Policy Analysis and Management, Vol. 24, No. 1, 113-132, 2005.

Goldhaber, D., “National Board Teachers are More Effective, But Are They in Classrooms Where They’re Needed the Most?” Education Finance and Policy, Summer 2006.

Hanushek, Eric A. “Some Findings from an Independent Investigation of the Tennessee STAR Experiment and from Other Investigations of Class Size Effects”, Educational Evaluation and Policy Analysis, Summer, 1999.

Ingersoll, Richard M. “Is there really a teacher shortage?”, September 2003.

National Center for Educational Statistics, Common Core Data

National Center of Educational Statistics, School and Staffing Survey (19992000)
Podgursky, Michael. “Is Teacher Pay Adequate,” October 2005. Paper prepared for conference “Adequacy Lawsuits: Their Growing Importance of American Education,” Kennedy School of Government, Harvard University.

Rivkin, Steven, Eric A. Hanushek and John F. Kain, “Teachers, Schools and Academic Achievement,” Econometrica, Vol 73, No. 2, March 2005.

Stinebrickner, Todd R., Scafidi, B., Sjoquist, D. 2002. “Do Teachers Really Leave for Higher Paying Jobs in Alternative Occupations?”. Department of Economics, University of Western Ontario.

Taylor, Lori. “Comparable Wages, Inflation and School Finance Equity,” Education Finance and Policy, Volume 1, No 3, Summer 2006

U. S. Bureau of the Census, Public Use Micro Sample, 2000.

U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics (2005).

U.S. Department of Labor, Bureau of Labor Statistics, National Compensation Survey, August 2005.

Wolkoff, Michael and Michael Podgursky, “Wyoming School District Employee Compensation,” Report submitted to Wyoming State Legislature, January 31, 2002.